

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/622,201
Source: IFW16
Date Processed by STIC: 3/5-05

ENTERED

CRF Errors Edited by the STIC Systems Branch

Serial Number: 10/622,201

CRF Edit Date: 3/15/05
Edited by: ket

___ Realigned nucleic acid/amino acid numbers/text in cases where the sequence text "wrapped" to the next line

___ Corrected the SEQ ID NO. Sequence numbers edited were:

___ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

☒ Deleted: ☒ invalid beginning/end-of-file text ; ___ page numbers

___ Inserted mandatory headings/numeric identifiers, specifically:

___ Moved responses to same line as heading/numeric identifier, specifically:

___ Other:



IFW16

RAW SEQUENCE LISTING

DATE: 03/15/2005

PATENT APPLICATION: US/10/622,201

TIME: 17:01:43

Input Set : A:\PTO.KD.txt

Output Set: N:\CRF4\03152005\J622201.raw

3 <110> APPLICANT: Barry, Gerard F.

4 Kishore, Ganesh M.

5 Padgette, Stephen R.

6 Stallings, William C.

8 <120> TITLE OF INVENTION: GLYPHOSATE TOLERANT 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE

SYNTASES

11 <130> FILE REFERENCE: 11899.0175.REUS07

13 <140> CURRENT APPLICATION NUMBER: 10/622,201

14 <141> CURRENT FILING DATE: 2003-07-18

16 <150> PRIOR APPLICATION NUMBER: US 08/306,063

17 <151> PRIOR FILING DATE: 1994-09-13

19 <150> PRIOR APPLICATION NUMBER: US 07/749,611

20 <151> PRIOR FILING DATE: 1991-08-28

22 <150> PRIOR APPLICATION NUMBER: US 07/576,537

23 <151> PRIOR FILING DATE: 1990-08-31

25 <160> NUMBER OF SEQ ID NOS: 70

27 <170> SOFTWARE: PatentIn version 3.3

29 <210> SEQ ID NO: 1

30 <211> LENGTH: 597

31 <212> TYPE: DNA

32 <213> ORGANISM: Figwort mosaic virus

34 <400> SEQUENCE: 1

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37 actttattca aattgggtatc gccaaaacca agaaggaact cccatcctca aagggtttgta 120

39 aggaagaatt ctcagtccaa agcctcaaca aggtcagggg acagagtctc caaaccatta 180

41 gccaaaagct acaggagatc aatgaagaat cttcaatcaa agtaaactac tgttccagca 240

43 catgcatcat ggtagtaag tttagaaaa agacatccac cgaagactta aagttagtgg 300

45 gcatctttga aagtaattct gtcaacatcg agcagctggc ttgtggggac cagacaaaaa 360

47 aggaatgggt cagaattgtt aggcgcacct accaaaagca tctttgcctt tattgcaaag 420

49 ataaagcaga ttcctctagt acaagtgggg aacaaaataa cgtggaaaag agctgtcctg 480

51 acagcccact cactaatgcg tatgacgaac gcagtgcga ccacaaaaga attccctcta 540

53 tataagaagg cattcattcc catttgaagg atcatcagat actaaccaat atttctc 597

56 <210> SEQ ID NO: 2

57 <211> LENGTH: 1982

58 <212> TYPE: DNA

59 <213> ORGANISM: Agrobacterium sp.

62 <220> FEATURE:

63 <221> NAME/KEY: CDS

64 <222> LOCATION: (62)..(1426)

66 <400> SEQUENCE: 2

67 aagcccgctg tctctccggc gctccgcccg gagagccgtg gatagattaa ggaagacgcc 60

69 c atg tcg cac ggt gca agc agc cgg ccc gca acc gcc cgc aaa tcc tct 109

70 Met Ser His Gly Ala Ser Ser Arg Pro Ala Thr Ala Arg Lys Ser Ser

71 1

5

10

15

Up 6)

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TIME: 17:01:43

Input Set : A:\PTO.KD.txt

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73	ggc	ctt	tcc	gga	acc	gtc	cgc	att	ccc	ggc	gac	aag	tcg	atc	tcc	cac	157
74	Gly	Leu	Ser	Gly	Thr	Val	Arg	Ile	Pro	Gly	Asp	Lys	Ser	Ile	Ser	His	
75				20					25					30			
77	cgg	tcc	ttc	atg	ttc	ggc	ggt	ctc	gcg	agc	ggt	gaa	acg	cgc	atc	acc	205
78	Arg	Ser	Phe	Met	Phe	Gly	Gly	Leu	Ala	Ser	Gly	Glu	Thr	Arg	Ile	Thr	
79			35					40						45			
81	ggc	ctt	ctg	gaa	ggc	gag	gac	gtc	atc	aat	acg	ggc	aag	gcc	atg	cag	253
82	Gly	Leu	Leu	Glu	Gly	Glu	Asp	Val	Ile	Asn	Thr	Gly	Lys	Ala	Met	Gln	
83		50					55					60					
85	gcc	atg	ggc	gcc	agg	atc	cgt	aag	gaa	ggc	gac	acc	tgg	atc	atc	gat	301
86	Ala	Met	Gly	Ala	Arg	Ile	Arg	Lys	Glu	Gly	Asp	Thr	Trp	Ile	Ile	Asp	
87	65					70				75					80		
89	ggc	gtc	ggc	aat	ggc	ggc	ctc	ctg	gcg	cct	gag	gcg	ccg	ctc	gat	ttc	349
90	Gly	Val	Gly	Asn	Gly	Gly	Leu	Leu	Ala	Pro	Glu	Ala	Pro	Leu	Asp	Phe	
91				85					90					95			
93	ggc	aat	gcc	gcc	acg	ggc	tgc	cgc	ctg	acc	atg	ggc	ctc	gtc	ggg	gtc	397
94	Gly	Asn	Ala	Ala	Thr	Gly	Cys	Arg	Leu	Thr	Met	Gly	Leu	Val	Gly	Val	
95				100					105					110			
97	tac	gat	ttc	gac	agc	acc	ttc	atc	ggc	gac	gcc	tcg	ctc	aca	aag	cgc	445
98	Tyr	Asp	Phe	Asp	Ser	Thr	Phe	Ile	Gly	Asp	Ala	Ser	Leu	Thr	Lys	Arg	
99			115					120					125				
101	ccg	atg	ggc	cgc	gtg	ttg	aac	ccg	ctg	cgc	gaa	atg	ggc	gtg	cag	gtg	493
102	Pro	Met	Gly	Arg	Val	Leu	Asn	Pro	Leu	Arg	Glu	Met	Gly	Val	Gln	Val	
103		130					135					140					
105	aaa	tcg	gaa	gac	ggt	gac	cgt	ctt	ccc	ggt	acc	ttg	cgc	ggg	ccg	aag	541
106	Lys	Ser	Glu	Asp	Gly	Asp	Arg	Leu	Pro	Val	Thr	Leu	Arg	Gly	Pro	Lys	
107	145					150				155				160			
109	acg	ccg	acg	ccg	atc	acc	tac	cgc	gtg	ccg	atg	gcc	tcc	gca	cag	gtg	589
110	Thr	Pro	Thr	Pro	Ile	Thr	Tyr	Arg	Val	Pro	Met	Ala	Ser	Ala	Gln	Val	
111				165					170					175			
113	aag	tcc	gcc	gtg	ctg	ctc	gcc	ggc	ctc	aac	acg	ccc	ggc	atc	acg	acg	637
114	Lys	Ser	Ala	Val	Leu	Leu	Ala	Gly	Leu	Asn	Thr	Pro	Gly	Ile	Thr	Thr	
115			180					185					190				
117	gtc	atc	gag	ccg	atc	atg	acg	cgc	gat	cat	acg	gaa	aag	atg	ctg	cag	685
118	Val	Ile	Glu	Pro	Ile	Met	Thr	Arg	Asp	His	Thr	Glu	Lys	Met	Leu	Gln	
119			195				200					205					
121	ggc	ttt	ggc	gcc	aac	ctt	acc	gtc	gag	acg	gat	gcg	gac	ggc	gtg	cgc	733
122	Gly	Phe	Gly	Ala	Asn	Leu	Thr	Val	Glu	Thr	Asp	Ala	Asp	Gly	Val	Arg	
123		210					215					220					
125	acc	atc	cgc	ctg	gaa	ggc	cgc	ggc	aag	ctc	acc	ggc	caa	gtc	atc	gac	781
126	Thr	Ile	Arg	Leu	Glu	Gly	Arg	Gly	Lys	Leu	Thr	Gly	Gln	Val	Ile	Asp	
127	225				230					235				240			
129	gtg	ccg	ggc	gac	ccg	tcc	tcg	acg	gcc	ttc	ccg	ctg	ggt	gcg	gcc	ctg	829
130	Val	Pro	Gly	Asp	Pro	Ser	Ser	Thr	Ala	Phe	Pro	Leu	Val	Ala	Ala	Leu	
131				245					250					255			
133	ctt	ggt	ccg	ggc	tcc	gac	gtc	acc	atc	ctc	aac	gtg	ctg	atg	aac	ccc	877
134	Leu	Val	Pro	Gly	Ser	Asp	Val	Thr	Ile	Leu	Asn	Val	Leu	Met	Asn	Pro	
135				260					265					270			
137	acc	cgc	acc	ggc	ctc	atc	ctg	acg	ctg	cag	gaa	atg	ggc	gcc	gac	atc	925

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Input Set : A:\PTO.KD.txt

Output Set: N:\CRF4\03152005\J622201.raw

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138 Thr Arg Thr Gly Leu Ile Leu Thr Leu Gln Glu Met Gly Ala Asp Ile
139          275          280          285
141 gaa gtc atc aac ccg cgc ctt gcc ggc ggc gaa gac gtg gcg gac ctg      973
142 Glu Val Ile Asn Pro Arg Leu Ala Gly Gly Glu Asp Val Ala Asp Leu
143          290          295          300
145 cgc gtt cgc tcc tcc acg ctg aag ggc gtc acg gtg ccg gaa gac cgc      1021
146 Arg Val Arg Ser Ser Thr Leu Lys Gly Val Thr Val Pro Glu Asp Arg
147 305          310          315          320
149 gcg cct tcg atg atc gac gaa tat ccg att ctc gct gtc gcc gcc gcc      1069
150 Ala Pro Ser Met Ile Asp Glu Tyr Pro Ile Leu Ala Val Ala Ala Ala
151          325          330          335
153 ttc gcg gaa ggg gcg acc gtg atg aac ggt ctg gaa gaa ctc cgc gtc      1117
154 Phe Ala Glu Gly Ala Thr Val Met Asn Gly Leu Glu Glu Leu Arg Val
155          340          345          350
157 aag gaa agc gac cgc ctc tcg gcc gtc gcc aat ggc ctc aag ctc aat      1165
158 Lys Glu Ser Asp Arg Leu Ser Ala Val Ala Asn Gly Leu Lys Leu Asn
159          355          360          365
161 ggc gtg gat tgc gat gag ggc gag acg tcg ctc gtc gtg cgc ggc cgc      1213
162 Gly Val Asp Cys Asp Glu Gly Glu Thr Ser Leu Val Val Arg Gly Arg
163          370          375          380
165 cct gac ggc aag ggg ctc ggc aac gcc tcg ggc gcc gcc gtc gcc acc      1261
166 Pro Asp Gly Lys Gly Leu Gly Asn Ala Ser Gly Ala Ala Val Ala Thr
167 385          390          395          400
169 cat ctc gat cac cgc atc gcc atg agc ttc ctc gtc atg ggc ctc gtg      1309
170 His Leu Asp His Arg Ile Ala Met Ser Phe Leu Val Met Gly Leu Val
171          405          410          415
173 tcg gaa aac cct gtc acg gtg gac gat gcc acg atg atc gcc acg agc      1357
174 Ser Glu Asn Pro Val Thr Val Asp Asp Ala Thr Met Ile Ala Thr Ser
175          420          425          430
177 ttc ccg gag ttc atg gac ctg atg gcc ggg ctg ggc gcg aag atc gaa      1405
178 Phe Pro Glu Phe Met Asp Leu Met Ala Gly Leu Gly Ala Lys Ile Glu
179          435          440          445
181 ctc tcc gat acg aag gct gcc tgatgacctt cacaatcgcc atcgatggtc      1456
182 Leu Ser Asp Thr Lys Ala Ala
183          450          455
185 ccgctgcggc cggcaagggg acgctctcgc gccgtatcgc ggaggtctat ggctttcatc      1516
187 atctcgatac gggcctgacc tatcgcgcca cggccaaagc gctgctcgat cgcggcctgt      1576
189 cgcttgatga cgaggcgggt gcggccgatg tcgcccgcaa tctcgatctt gccgggctcg      1636
191 accggtcggg gctgtcgccc catgccatcg gcgaggcggc ttcgaagatc gcggtcatgc      1696
193 cctcgggtcgc gcgggcgctg gtcgaggcgc agcgcagctt tgcggcgcgt gagccgggca      1756
195 cggtgctgga tggacgcgat atcggcacgg tgggtctgcc ggatgcgccg gtgaagctct      1816
197 atgtcaccgc gtcaccggaa gtgcgcgcga aacgccgcta tgacgaaatc ctcggaatg      1876
199 gcgggttggc cgattacggg acgatcctcg aggatatccg ccgccgcgac gagcgggaca      1936
201 tgggtcgggc ggacagtcct ttgaagcccg ccgacgatgc gcactt      1982
204 <210> SEQ ID NO: 3
205 <211> LENGTH: 455
206 <212> TYPE: PRT
207 <213> ORGANISM: Agrobacterium sp.
209 <400> SEQUENCE: 3

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RAW SEQUENCE LISTING

DATE: 03/15/2005

PATENT APPLICATION: US/10/622,201

TIME: 17:01:43

Input Set : A:\PTO.KD.txt

Output Set : N:\CRF4\03152005\J622201.raw

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211 Met Ser His Gly Ala Ser Ser Arg Pro Ala Thr Ala Arg Lys Ser Ser
212 1 5 10 15
215 Gly Leu Ser Gly Thr Val Arg Ile Pro Gly Asp Lys Ser Ile Ser His
216 20 25 30
219 Arg Ser Phe Met Phe Gly Gly Leu Ala Ser Gly Glu Thr Arg Ile Thr
220 35 40 45
223 Gly Leu Leu Glu Gly Glu Asp Val Ile Asn Thr Gly Lys Ala Met Gln
224 50 55 60
227 Ala Met Gly Ala Arg Ile Arg Lys Glu Gly Asp Thr Trp Ile Ile Asp
228 65 70 75 80
231 Gly Val Gly Asn Gly Gly Leu Leu Ala Pro Glu Ala Pro Leu Asp Phe
232 85 90 95
235 Gly Asn Ala Ala Thr Gly Cys Arg Leu Thr Met Gly Leu Val Gly Val
236 100 105 110
239 Tyr Asp Phe Asp Ser Thr Phe Ile Gly Asp Ala Ser Leu Thr Lys Arg
240 115 120 125
243 Pro Met Gly Arg Val Leu Asn Pro Leu Arg Glu Met Gly Val Gln Val
244 130 135 140
247 Lys Ser Glu Asp Gly Asp Arg Leu Pro Val Thr Leu Arg Gly Pro Lys
248 145 150 155 160
251 Thr Pro Thr Pro Ile Thr Tyr Arg Val Pro Met Ala Ser Ala Gln Val
252 165 170 175
255 Lys Ser Ala Val Leu Leu Ala Gly Leu Asn Thr Pro Gly Ile Thr Thr
256 180 185 190
259 Val Ile Glu Pro Ile Met Thr Arg Asp His Thr Glu Lys Met Leu Gln
260 195 200 205
263 Gly Phe Gly Ala Asn Leu Thr Val Glu Thr Asp Ala Asp Gly Val Arg
264 210 215 220
267 Thr Ile Arg Leu Glu Gly Arg Gly Lys Leu Thr Gly Gln Val Ile Asp
268 225 230 235 240
271 Val Pro Gly Asp Pro Ser Ser Thr Ala Phe Pro Leu Val Ala Ala Leu
272 245 250 255
275 Leu Val Pro Gly Ser Asp Val Thr Ile Leu Asn Val Leu Met Asn Pro
276 260 265 270
279 Thr Arg Thr Gly Leu Ile Leu Thr Leu Gln Glu Met Gly Ala Asp Ile
280 275 280 285
283 Glu Val Ile Asn Pro Arg Leu Ala Gly Gly Glu Asp Val Ala Asp Leu
284 290 295 300
287 Arg Val Arg Ser Ser Thr Leu Lys Gly Val Thr Val Pro Glu Asp Arg
288 305 310 315 320
291 Ala Pro Ser Met Ile Asp Glu Tyr Pro Ile Leu Ala Val Ala Ala Ala
292 325 330 335
295 Phe Ala Glu Gly Ala Thr Val Met Asn Gly Leu Glu Glu Leu Arg Val
296 340 345 350
299 Lys Glu Ser Asp Arg Leu Ser Ala Val Ala Asn Gly Leu Lys Leu Asn
300 355 360 365
303 Gly Val Asp Cys Asp Glu Gly Glu Thr Ser Leu Val Val Arg Gly Arg
304 370 375 380
307 Pro Asp Gly Lys Gly Leu Gly Asn Ala Ser Gly Ala Ala Val Ala Thr

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/622,201

DATE: 03/15/2005

TIME: 17:01:43

Input Set : A:\PTO.KD.txt

Output Set : N:\CRF4\03152005\J622201.raw

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308 385          390          395          400
311 His Leu Asp His Arg Ile Ala Met Ser Phe Leu Val Met Gly Leu Val
312          405          410          415
315 Ser Glu Asn Pro Val Thr Val Asp Asp Ala Thr Met Ile Ala Thr Ser
316          420          425          430
319 Phe Pro Glu Phe Met Asp Leu Met Ala Gly Leu Gly Ala Lys Ile Glu
320          435          440          445
323 Leu Ser Asp Thr Lys Ala Ala
324          450          455
327 <210> SEQ ID NO: 4
328 <211> LENGTH: 1673
329 <212> TYPE: DNA
330 <213> ORGANISM: Agrobacterium sp.
333 <220> FEATURE:
334 <221> NAME/KEY: CDS
335 <222> LOCATION: (86)..(1432)
337 <400> SEQUENCE: 4
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340 gccaaaatgt gactgtgaaa aatcc atg tcc cat tct gca tcc ccg aaa cca 112
341          Met Ser His Ser Ala Ser Pro Lys Pro
342          1          5
344 gca acc gcc cgc cgc tcg gag gca ctc acg ggc gaa atc cgc att ccg 160
345 Ala Thr Ala Arg Arg Ser Glu Ala Leu Thr Gly Glu Ile Arg Ile Pro
346 10          15          20          25
348 ggc gac aag tcc atc tcg cat cgc tcc ttc atg ttt ggc ggt ctc gca 208
349 Gly Asp Lys Ser Ile Ser His Arg Ser Phe Met Phe Gly Gly Leu Ala
350          30          35          40
352 tcg ggc gaa acc cgc atc acc ggc ctt ctg gaa ggc gag gac gtc atc 256
353 Ser Gly Glu Thr Arg Ile Thr Gly Leu Leu Glu Gly Glu Asp Val Ile
354          45          50          55
356 aat aca ggc cgc gcc atg cag gcc atg ggc gcg aaa atc cgt aaa gag 304
357 Asn Thr Gly Arg Ala Met Gln Ala Met Gly Ala Lys Ile Arg Lys Glu
358          60          65          70
360 ggc gat gtc tgg atc atc aac ggc gtc ggc aat ggc tgc ctg ttg cag 352
361 Gly Asp Val Trp Ile Ile Asn Gly Val Gly Asn Gly Cys Leu Leu Gln
362          75          80          85
364 ccc gaa gct gcg ctc gat ttc ggc aat gcc gga acc ggc gcg cgc ctc 400
365 Pro Glu Ala Ala Leu Asp Phe Gly Asn Ala Gly Thr Gly Ala Arg Leu
366 90          95          100          105
368 acc atg ggc ctt gtc ggc acc tat gac atg aag acc tcc ttt atc ggc 448
369 Thr Met Gly Leu Val Gly Thr Tyr Asp Met Lys Thr Ser Phe Ile Gly
370          110          115          120
372 gac gcc tcg ctg tcg aag cgc ccg atg ggc cgc gtg ctg aac ccg ttg 496
373 Asp Ala Ser Leu Ser Lys Arg Pro Met Gly Arg Val Leu Asn Pro Leu
374          125          130          135
376 cgc gaa atg ggc gtt cag gtg gaa gca gcc gat ggc gac cgc atg ccg 544
377 Arg Glu Met Gly Val Gln Val Glu Ala Ala Asp Gly Asp Arg Met Pro
378          140          145          150
380 ctg acg ctg atc ggc ccg aag acg gcc aat ccg atc acc tat cgc gtg 592

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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/622,201

DATE: 03/15/2005
TIME: 17:01:44

Input Set : A:\PTO.KD.txt
Output Set: N:\CRF4\03152005\J622201.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:18; Xaa Pos. 1,18
Seq#:22; N Pos. 9
Seq#:23; N Pos. 9
Seq#:30; Xaa Pos. 1
Seq#:37; Xaa Pos. 2,4
Seq#:38; Xaa Pos. 4
Seq#:39; Xaa Pos. 4
Seq#:40; Xaa Pos. 2
Seq#:54; Xaa Pos. 8

VERIFICATION SUMMARY

DATE: 03/15/2005

PATENT APPLICATION: US/10/622,201

TIME: 17:01:44

Input Set : A:\PTO.KD.txt

Output Set: N:\CRF4\03152005\J622201.raw

L:1307 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0
M:341 Repeated in SeqNo=18
L:1367 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0
L:1388 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0
L:1476 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0
L:1585 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
L:1605 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
L:1626 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0
L:1647 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0
L:2789 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:0



IFW16

RAW SEQUENCE LISTING

DATE: 03/10/2005

PATENT APPLICATION: US/10/622,201

TIME: 15:45:20

Input Set : A:\11899.0175.REUS07.ST25.txt

Output Set: N:\CRF4\03102005\J622201.raw

3 <110> APPLICANT: Barry, Gerard F.
 4 Kishore, Ganesh M.
 5 Padgett, Stephen R.
 6 Stallings, William C.
 8 <120> TITLE OF INVENTION: GLYPHOSATE TOLERANT 5-ENOLPYRUVYLSHIKIMATE-3-PHOSPHATE
 SYNTHASES
 11 <130> FILE REFERENCE: 11899.0175.REUS07
 13 <140> CURRENT APPLICATION NUMBER: 10/622,201
 14 <141> CURRENT FILING DATE: 2003-07-18
 16 <150> PRIOR APPLICATION NUMBER: US 08/306,063
 17 <151> PRIOR FILING DATE: 1994-09-13
 19 <150> PRIOR APPLICATION NUMBER: US 07/749,611
 20 <151> PRIOR FILING DATE: 1991-08-28
 22 <150> PRIOR APPLICATION NUMBER: US 07/576,537
 23 <151> PRIOR FILING DATE: 1990-08-31
 25 <160> NUMBER OF SEQ ID NOS: 70
 27 <170> SOFTWARE: PatentIn version 3.3

Does Not Comply
 Corrected Diskette Needed

(pg. 2-5) ↗

ERRORED SEQUENCES

4579 <210> SEQ ID NO: 69
 4580 <211> LENGTH: 443
 4581 <212> TYPE: PRT
 4582 <213> ORGANISM: Dichelobacter nodosus
 4584 <400> SEQUENCE: 69
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 4590 Glu Ile Thr Ile Cys Gly Asp Lys Ser Met Ser His Arg Ala Leu Leu
 4591 20 25 30
 4594 Leu Ala Ala Leu Ala Glu Gly Gln Thr Glu Ile Arg Gly Phe Leu Ala
 4595 35 40 45
 4598 Cys Ala Asp Cys Leu Ala Thr Arg Gln Ala Leu Arg Ala Leu Gly Val
 4599 50 55 60
 4602 Asp Ile Gln Arg Glu Lys Glu Ile Val Thr Ile Arg Gly Val Gly Phe
 4603 65 70 75 80
 4606 Leu Gly Leu Gln Pro Pro Lys Ala Pro Leu Asn Met Gln Asn Ser Gly
 4607 85 90 95
 4610 Thr Ser Met Arg Leu Leu Ala Gly Ile Leu Ala Ala Gln Arg Phe Glu
 4611 100 105 110
 4614 Ser Val Leu Cys Gly Asp Glu Ser Leu Glu Lys Arg Pro Met Gln Arg
 4615 115 120 125
 4618 Ile Ile Thr Pro Leu Val Gln Met Gly Ala Lys Ile Val Ser His Ser
 4619 130 135 140

RAW SEQUENCE LISTING

DATE: 03/10/2005

PATENT APPLICATION: US/10/622,201

TIME: 15:45:20

Input Set : A:\11899.0175.REUS07.ST25.txt

Output Set: N:\CRF4\03102005\J622201.raw

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4623 145                               150                               155                               160
4626 Asp Tyr Ala Leu Pro Leu Pro Ser Ala Gln Leu Lys Ser Cys Leu Ile
4627                               165                               170                               175
4630 Leu Ala Gly Leu Leu Ala Asp Gly Thr Thr Arg Leu His Thr Cys Gly
4631                               180                               185                               190
4634 Ile Ser Arg Asp His Thr Glu Arg Met Leu Pro Leu Phe Gly Gly Ala
4635                               195                               200                               205
4638 Leu Glu Ile Lys Lys Glu Gln Ile Ile Val Thr Gly Gly Gln Lys Leu
4639 210                               215                               220
4642 His Gly Cys Val Leu Asp Ile Val Gly Asp Leu Ser Ala Ala Ala Phe
4643 225                               230                               235                               240
4646 Phe Met Val Ala Ala Leu Ile Ala Pro Arg Ala Glu Val Val Ile Arg
4647                               245                               250                               255
4650 Asn Val Gly Ile Asn Pro Thr Arg Ala Ala Ile Ile Thr Leu Leu Gln
4651                               260                               265                               270
4654 Lys Met Gly Gly Arg Ile Glu Leu His His Gln Arg Phe Trp Gly Ala
4655                               275                               280                               285
4658 Glu Pro Val Ala Asp Ile Val Val Tyr His Ser Lys Leu Arg Gly Ile
4659 290                               295                               300
4662 Thr Val Ala Pro Glu Trp Ile Ala Asn Ala Ile Asp Glu Leu Pro Ile
4663 305                               310                               315                               320
4666 Phe Phe Ile Ala Ala Ala Cys Ala Glu Gly Thr Thr Phe Val Gly Asn
4667                               325                               330                               335
4670 Leu Ser Glu Leu Arg Val Lys Glu Ser Asp Arg Leu Ala Ala Met Ala
4671                               340                               345                               350
4674 Gln Asn Leu Gln Thr Leu Gly Val Ala Cys Asp Val Gly Ala Asp Phe
4675 355                               360                               365
4678 Ile His Ile Tyr Gly Arg Ser Asp Arg Gln Phe Leu Pro Ala Arg Val
4679 370                               375                               380
4682 Asn Ser Phe Gly Asp His Arg Ile Ala Met Ser Leu Ala Val Ala Gly
4683 385                               390                               395                               400
4686 Val Arg Ala Ala Gly Glu Leu Leu Ile Asp Asp Gly Ala Val Ala Ala
4687                               405                               410                               415
4690 Val Ser Met Pro Gln Phe Arg Asp Phe Ala Ala Ala Ile Gly Met Asn
4691                               420                               425                               430
4694 Val Gly Glu Lys Asp Ala Lys Asn Cys His Asp
4695 435                               440

```

E--> 4697

4698 <210> SEQ ID NO: 70

4699 <211> LENGTH: 455

4700 <212> TYPE: PRT

4701 <213> ORGANISM: Artificial sequence

4703 <220> FEATURE:

4704 <223> OTHER INFORMATION: Synthetic

4706 <400> SEQUENCE: 70

4708 Met Leu His Gly Ala Ser Ser Arg Pro Ala Thr Ala Arg Lys Ser Ser

4709 1 5 10 15

4712 Gly Leu Ser Gly Thr Val Arg Ile Pro Gly Asp Lys Ser Ile Ser His

see page 5 For
error
explanation.

RAW SEQUENCE LISTING

DATE: 03/10/2005

PATENT APPLICATION: US/10/622,201

TIME: 15:45:20

Input Set : A:\11899.0175.REUS07.ST25.txt

Output Set: N:\CRF4\03102005\J622201.raw

4713	20	25	30
4716	Arg Ser Phe Met Phe Gly Gly Leu Ala Ser Gly Glu Thr Arg Ile Thr		
4717	35	40	45
4720	Gly Leu Leu Glu Gly Glu Asp Val Ile Asn Thr Gly Lys Ala Met Gln		
4721	50	55	60
4724	Ala Met Gly Ala Arg Ile Arg Lys Glu Gly Asp Thr Trp Ile Ile Asp		
4725	65	70	75
4728	Gly Val Gly Asn Gly Gly Leu Leu Ala Pro Glu Ala Pro Leu Asp Phe		
4729	85	90	95
4732	Gly Asn Ala Ala Thr Gly Cys Arg Leu Thr Met Gly Leu Val Gly Val		
4733	100	105	110
4736	Tyr Asp Phe Asp Ser Thr Phe Ile Gly Asp Ala Ser Leu Thr Lys Arg		
4737	115	120	125
4740	Pro Met Gly Arg Val Leu Asn Pro Leu Arg Glu Met Gly Val Gln Val		
4741	130	135	140
4744	Lys Ser Glu Asp Gly Asp Arg Leu Pro Val Thr Leu Arg Gly Pro Lys		
4745	145	150	155
4748	Thr Pro Thr Pro Ile Thr Tyr Arg Val Pro Met Ala Ser Ala Gln Val		
4749	165	170	175
4752	Lys Ser Ala Val Leu Leu Ala Gly Leu Asn Thr Pro Gly Ile Thr Thr		
4753	180	185	190
4756	Val Ile Glu Pro Ile Met Thr Arg Asp His Thr Glu Lys Met Leu Gln		
4757	195	200	205
4760	Gly Phe Gly Ala Asn Leu Thr Val Glu Thr Asp Ala Asp Gly Val Arg		
4761	210	215	220
4764	Thr Ile Arg Leu Glu Gly Arg Gly Lys Leu Thr Gly Gln Val Ile Asp		
4765	225	230	235
4768	Val Pro Gly Asp Pro Ser Ser Thr Ala Phe Pro Leu Val Ala Ala Leu		
4769	245	250	255
4772	Leu Val Pro Gly Ser Asp Val Thr Ile Leu Asn Val Leu Met Asn Pro		
4773	260	265	270
4776	Thr Arg Thr Gly Leu Ile Leu Thr Leu Gln Glu Met Gly Ala Asp Ile		
4777	275	280	285
4780	Glu Val Ile Asn Pro Arg Leu Ala Gly Gly Glu Asp Val Ala Asp Leu		
4781	290	295	300
4784	Arg Val Arg Ser Ser Thr Leu Lys Gly Val Thr Val Pro Glu Asp Arg		
4785	305	310	315
4788	Ala Pro Ser Met Ile Asp Glu Tyr Pro Ile Leu Ala Val Ala Ala Ala		
4789	325	330	335
4792	Phe Ala Glu Gly Ala Thr Val Met Asn Gly Leu Glu Glu Leu Arg Val		
4793	340	345	350
4796	Lys Glu Ser Asp Arg Leu Ser Ala Val Ala Asn Gly Leu Lys Leu Asn		
4797	355	360	365
4800	Gly Val Asp Cys Asp Glu Gly Glu Thr Ser Leu Val Val Arg Gly Arg		
4801	370	375	380
4804	Pro Asp Gly Lys Gly Leu Gly Asn Ala Ser Gly Ala Ala Val Ala Thr		
4805	385	390	395
4808	His Leu Asp His Arg Ile Ala Met Ser Phe Leu Val Met Gly Leu Val		
4809	405	410	415

See
PAGE 5
For
error
explanation

RAW SEQUENCE LISTING

DATE: 03/10/2005

PATENT APPLICATION: US/10/622,201

TIME: 15:45:20

Input Set : A:\11899.0175.REUS07.ST25.txt

Output Set: N:\CRF4\03102005\J622201.raw

4812	Ser	Glu	Asn	Pro	Val	Thr	Val	Asp	Asp	Ala	Thr	Met	Ile	Ala	Thr	Ser
4813				420				425					430			
4816	Phe	Pro	Glu	Phe	Met	Asp	Leu	Met	Ala	Gly	Leu	Gly	Ala	Lys	Ile	Glu
4817			435					440					445			
4820	Leu	Ser	Asp	Thr	Lys	Ala	Ala									
4821		450					455									

E--> 4824

See
PAGE 5
for error
explanation,

deleted, also
deleted
end of
file

10/622/201

Page 5

<U>
<210> 70
<211> 455
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic

<400> 70

Met Leu His Gly Ala Ser Ser Arg Pro Ala Thr Ala Arg Lys Ser Ser
1 5 10 15

Gly Leu Ser Gly Thr Val Arg Ile Pro Gly Asp Lys Ser Ile Ser His
20 25 30

Arg Ser Phe Met Phe Gly Gly Leu Ala Ser Gly Glu Thr Arg Ile Thr
35 40 45

Gly Leu Leu Glu Gly Glu Asp Val Ile Asn Thr Gly Lys Ala Met Gln
50 55 60

Ala Met Gly Ala Arg Ile Arg Lys Glu Gly Asp Thr Trp Ile Ile Asp
65 70 75 80

Gly Val Gly Asn Gly Gly Leu Leu Ala Pro Glu Ala Pro Leu Asp Phe
85 90 95

Gly Asn Ala Ala Thr Gly Cys Arg Leu Thr Met Gly Leu Val Gly Val
100 105 110

Tyr Asp Phe Asp Ser Thr Phe Ile Gly Asp Ala Ser Leu Thr Lys Arg
115 120 125

Pro Met Gly Arg Val Leu Asn Pro Leu Arg Glu Met Gly Val Gln Val
130 135 140

Lys Ser Glu Asp Gly Asp Arg Leu Pro Val Thr Leu Arg Gly Pro Lys
145 150 155 160

Thr Pro Thr Pro Ile Thr Tyr Arg Val Pro Met Ala Ser Ala Gln Val
165 170 175

Lys Ser Ala Val Leu Leu Ala Gly Leu Asn Thr Pro Gly Ile Thr Thr
180 185 190

VERIFICATION SUMMARY

DATE: 03/10/2005

PATENT APPLICATION: US/10/622,201

TIME: 15:45:21

Input Set : A:\11899.0175.REUS07.ST25.txt

Output Set: N:\CRF4\03102005\J622201.raw

L:1307 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0

M:341 Repeated in SeqNo=18

L:1367 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0

L:1388 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0

L:1476 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0

L:1585 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0

L:1605 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0

L:1626 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0

L:1647 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0

L:2789 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:0

L:4697 M:330 E: (2) Invalid Amino Acid Designator, NUMBER OF INVALID KEYS:1

L:4697 M:252 E: No. of Seq. differs, <211> LENGTH:Input:443 Found:444 SEQ:69

L:4824 M:330 E: (2) Invalid Amino Acid Designator, NUMBER OF INVALID KEYS:1

L:4824 M:252 E: No. of Seq. differs, <211> LENGTH:Input:455 Found:456 SEQ:70